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February 1964

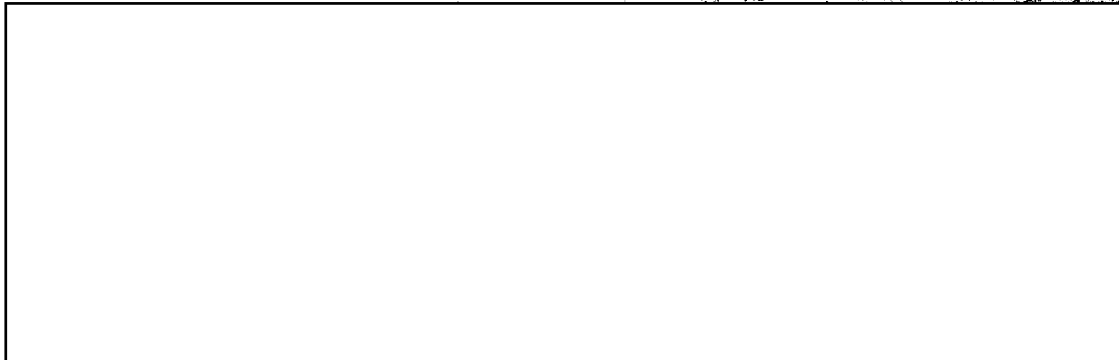
PHOTOGRAPHIC INTERPRETATION REPORT

# NEW 220-KILOVOLT POWER LINE ANZHERO-SUDZHENSK TO THE CITY OF TOMSK, USSR

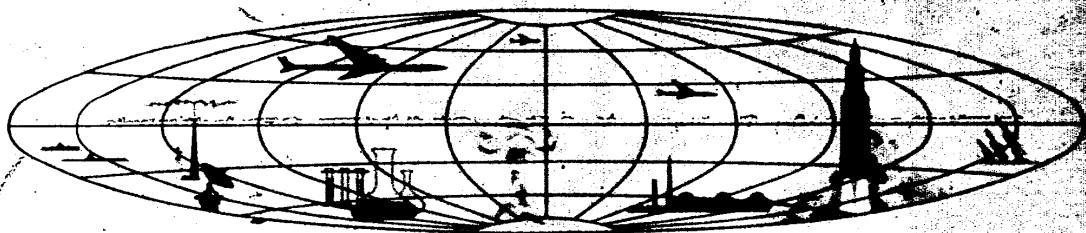
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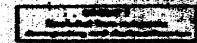
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# NEW 220-KILOVOLT POWER LINE ANZHERO-SUDZHENSK TO THE CITY OF TOMSK, USSR

## SUMMARY

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photography confirms Soviet statements <sup>1</sup> that a 220-kilo-volt (kv) power line has been completed between the Kuzbass\* power grid, which extends south of the Trans-Siberian Railway, and the city of \*Kuznetskiy ugolnyy bassey (Kuznetsk coal basin).

Tomsk to the north (Figure 1). Earlier observations of the trace for this power line strongly suggested that a superhighway was under construction. <sup>2</sup> No 220-kv power line exists between the city of Tomsk and the Tomsk Atomic Energy Complex farther north.

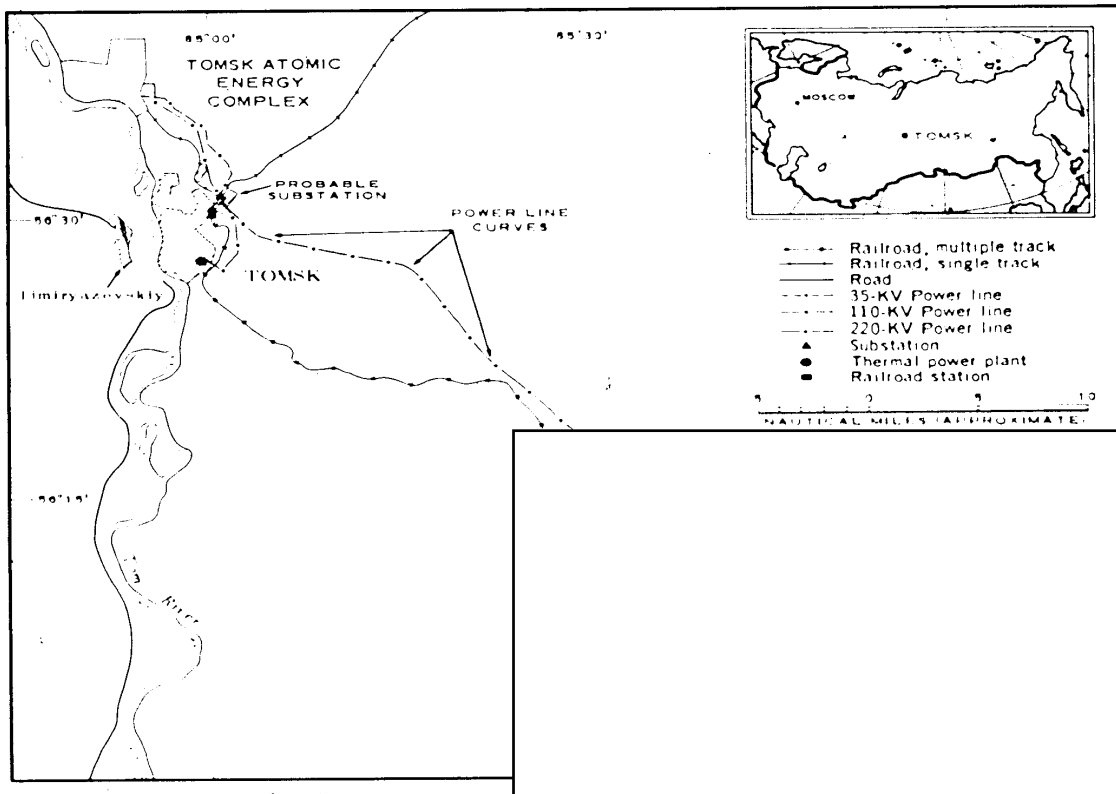


FIGURE 1. NEW POWER LINE FROM ANZHERO-SUDZHENSK TO THE CITY OF TOMSK, USSR.

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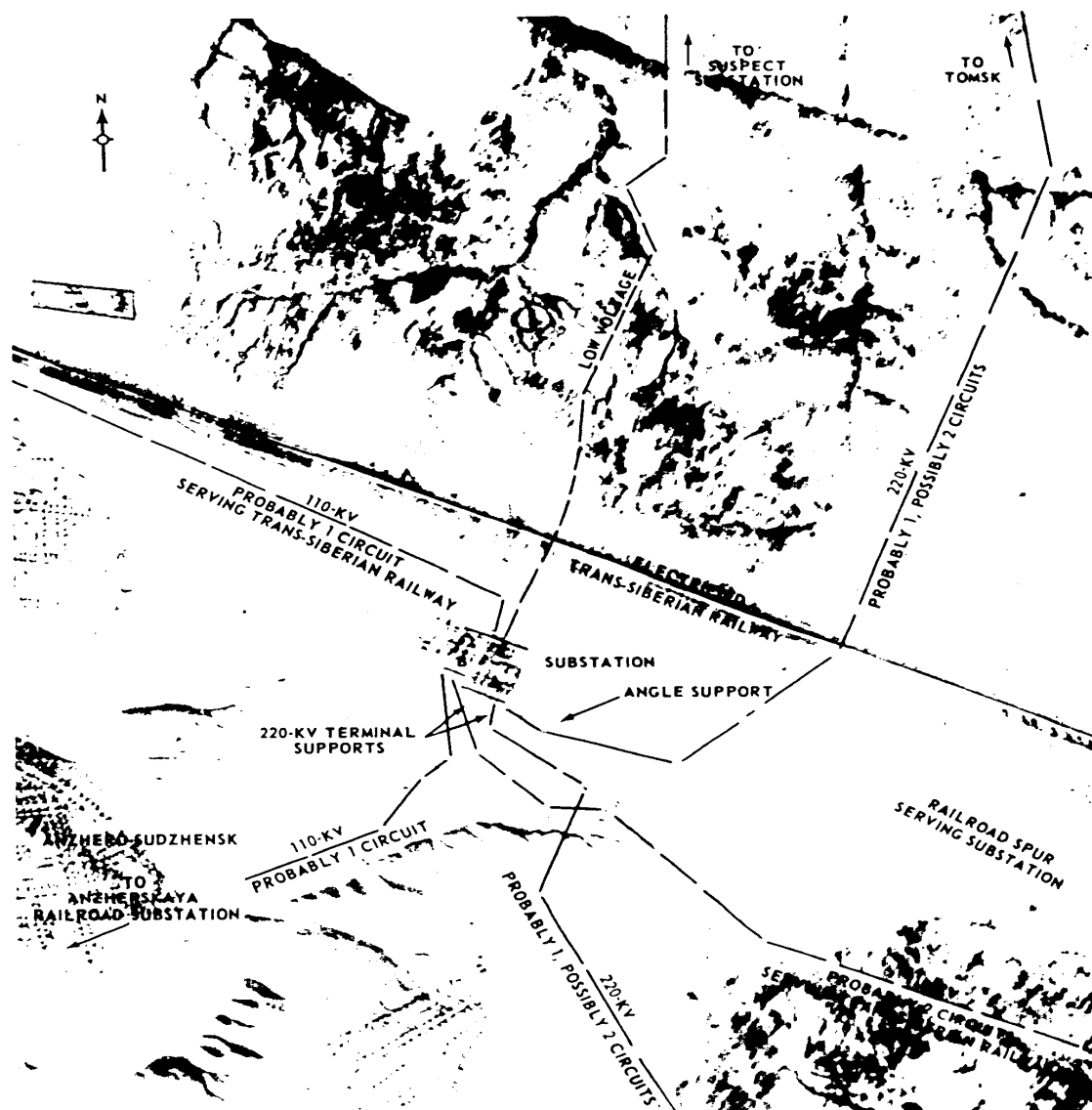


FIGURE 2. ANZHERO-SUDZHENSK SUBSTATION.

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#### DESCRIPTION

The Anzhero-Sudzhensk major transformer and switching substation (Figure 2) is located south of the Trans-Siberian Railway and about 3 nautical miles (nm) east of Anzherskaya railroad station, which is in the southern portion of the Anzhero-Sudzhensk urban complex. A power line trace, with many supports identified, has now been confirmed between this substation and a probable transformer and switching substation in the northeastern outskirts of the city of Tomsk (Figure 3). The trace is approximately 200 feet wide and the interval between supports averages about 1,250 feet, indicating that 220-kv power is being or will be transmitted between Anzhero-Sudzhensk and Tomsk. The supports appear to be steel lattice towers, probably for carrying two three-phase 220-kv circuits. The form of the supports is indicated by the shadow of an angle support near the Anzhero-Sudzhensk substation. Available photography does not permit a positive determination as to whether conductors for one or two circuits have been strung.

A peculiarity of the trace for this power line is the way in which it changes direction. Normally, trace tangents meet at an angle, where conductors are anchored at a heavily braced angle support. The Anzhero-Sudzhensk/Tomsk trace, however, changes direction using an arc of long radius, which requires several braced supports. Consequently, the trace has more of a superhighway's alignment than that of an electric power line (Figure 1).

##### Anzhero-Sudzhensk Substation

This substation, located at 56-04 86-03E, is in an L-shaped secured area and consists of a 220-kv switching yard (A), including two transformers, in the larger southeast section; a 110-kv switching yard (B) in the smaller west section; and a low-voltage (35 or 6-10 kv) switch-

ing yard (C) in the northeast corner (Figure 2). Terminal supports for 220-kv circuits can be seen clearly outside the southern side of the 220-kv switching yard.

##### Probable Substation at the City of Tomsk

A large secured area at 56-31N 85-01E in the northeastern outskirts of the city of Tomsk is probably the site of the northwest terminus of the Anzhero-Sudzhensk/Tomsk 220-kv power line (Figure 3). [REDACTED] covering the site, however, are somewhat obscured by haze or smoke, which prevents detailed analysis. The area apparently contains three switching yards, for 220-kv (A), 110-kv (B), and low-voltage, probably 35-kv (C) power respectively; and possibly one bank of three single-phase step-down transformers, which may have three windings. There is no evidence either at the city of Tomsk or at the Tomsk Atomic Energy Complex that any 220-kv power lines existed between these two places in [REDACTED]

##### Circuit Diagram

The relationship of the Anzhero-Sudzhensk/Tomsk power line to observed power lines in the Tomsk area and those in the immediate vicinity of Anzhero-Sudzhensk is indicated in the circuit diagram (Figure 4). The number of circuits (one or two) carried on a particular power line, however, remains conjectural at the present time, with one exception. Since it is normal Soviet practice for a two-circuit 110-kv power line to parallel an electrified railroad, it can be assumed that two such circuits exist on the east-west power line which passes through Anzhero-Sudzhensk and which serves the Trans-Siberian Railway and communities along this railroad.

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FIGURE 3. PROBABLE SUBSTATION AT THE CITY OF TOMSK.

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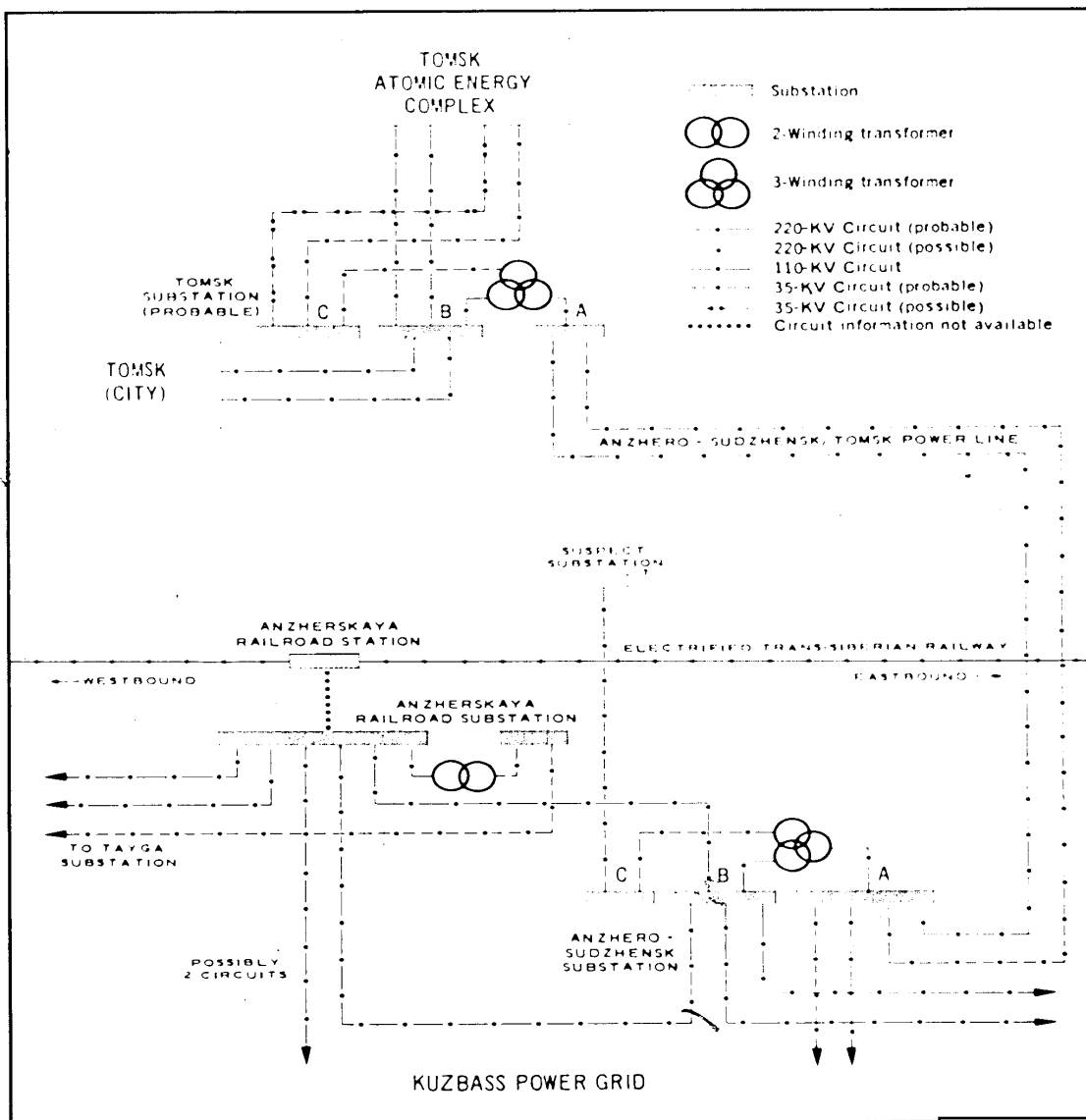


FIGURE 4. CIRCUIT DIAGRAM.

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REFERENCES

PHOTOGRAPHY



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CHART

ACIC. USAF Pilotage Chart, Sheet 155C (Tomsk), 1st ed, Apr 56, scale 1:500,000 (CONFIDENTIAL)

DOCUMENTS

1. I.P. Butyagin et al. Energetika Sibiri (Electric Power of Siberia), published by Gosenergoizdat, Moscow, 1963 (UNCLASSIFIED)

2. NPIC R-99-62, Atomic Energy Installation, Tomsk, USSR, Changes [redacted] Jul 62 (TOP SECRET [redacted])

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REQUIREMENT

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